

## Installation Guide

# hp StorageWorks NAS 1200s

Product Version: 1.0

First Edition (September 2003)

Part Number: 351698-001

This installation guide provides information about how to deploy the HP StorageWorks NAS 1200s.



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NAS 1200s Installation Guide  
First Edition (September 2003)  
Part Number: 351698-001

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## About This Guide

This installation guide provides information to help you deploy the HP StorageWorks NAS 1200s.

“About this Guide” topics include:

- [Overview](#), page 7
- [Conventions](#), page 8
- [Rack Stability](#), page 11
- [Getting Help](#), page 11

## Overview

This section covers the following topics:

- [Intended Audience](#)
- [Prerequisites](#)
- [Related Documentation](#)

## Intended Audience

This book is intended for use by technical professionals who are experienced with the following:

- Microsoft® administrative procedures
- file-sharing protocols

## Prerequisites

Before you set up the NAS 1200s, HP recommends that you obtain supplemental documentation relative to the items listed above in the section titled “Intended Audience.”

# Related Documentation

In addition to this guide, HP provides corresponding information:

- *HP StorageWorks NAS 1200s Administration Guide*
- HP StorageWorks NAS 1200s Quick Reference and Rack Installation Poster
- *HP StorageWorks NAS 1200s Release Notes*

# Conventions

Conventions consist of the following:

- [Document Conventions](#)
- [Text Symbols](#)
- [Equipment Symbols](#)

# Document Conventions

The document conventions included in [Table 1](#) apply in most cases.

**Table 1: Document Conventions**

Element	Convention
Cross-reference links	<a href="#">Figure 1</a>
Key and field names, menu items, buttons, and dialog box titles	<b>Bold</b>
File names, application names, and text emphasis	<i>Italics</i>
User input, command and directory names, and system responses (output and messages)	Monospace font COMMAND NAMES are uppercase monospace font unless they are case sensitive
Variables	<monospace, italic font>
Website addresses	Underlined sans serif font text: <a href="http://www.hp.com">http://www.hp.com</a>



## Text Symbols

The following symbols may be found in the text of this guide. They have the following meanings:



**WARNING:** Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or death.

---



**Caution:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or data.

---

---

**Note:** Text set off in this manner presents commentary, sidelights, or interesting points of information.

---

## Equipment Symbols

The following equipment symbols may be found on hardware for which this guide pertains. They have the following meanings:



Any enclosed surface or area of the equipment marked with these symbols indicates the presence of electrical shock hazards. Enclosed area contains no operator serviceable parts.

**WARNING:** To reduce the risk of personal injury from electrical shock hazards, do not open this enclosure.

---



Any RJ-45 receptacle marked with these symbols indicates a network interface connection.

**WARNING:** To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

---



Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. Contact with this surface could result in injury.

**WARNING:** To reduce the risk of personal injury from a hot component, allow the surface to cool before touching.

---



Power supplies or systems marked with these symbols indicate the presence of multiple sources of power.

**WARNING:** To reduce the risk of personal injury from electrical shock, remove all power cords to completely disconnect power from the power supplies and systems.

---



Any product or assembly marked with these symbols indicates that the component exceeds the recommended weight for one individual to handle safely.

**WARNING:** To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manually handling material.

---

# Rack Stability

Rack stability protects personnel and equipment.



**WARNING:** To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling jacks are extended to the floor.
  - The full weight of the rack rests on the leveling jacks.
  - In single rack installations, the stabilizing feet are attached to the rack.
  - In multiple rack installations, the racks are coupled.
  - Only one rack component is extended at any time. A rack may become unstable if more than one rack component is extended for any reason.
- 

## Getting Help

If you still have a question after reading this guide, contact an HP authorized service provider or access our website:

<http://www.hp.com>.

## HP Technical Support

Telephone numbers for worldwide technical support are listed on the following HP website: <http://www.hp.com/support/>. From this website, select the country of origin.

---

**Note:** For continuous quality improvement, calls may be recorded or monitored.

---

Be sure to have the following information available before calling:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

## HP Storage Website

The HP website has the latest information on this product, as well as the latest drivers. Access storage at: <http://www.hp.com/country/us/eng/prodserv/storage.html>. From this website, select the appropriate product or solution.

## HP Authorized Reseller

For the name of your nearest HP authorized reseller:

- In the United States, call 1-800-345-1518
- In Canada, call 1-800-263-5868
- Elsewhere, see the HP website for locations and telephone numbers: <http://www.hp.com>.

# Product Overview



This chapter describes the configuration options and setup and configuration dependencies and requirements for the HP StorageWorks NAS 1200s.

## Configuration Options

The NAS 1200s is specifically designed for file serving; it offers optimized performance for a growing environment.

The NAS 1200s is available in three models:

- 1 TB
- 640 GB
- 320 GB

# Product Definition and Information

The NAS 1200s is a remote office or small to medium business class NAS solution that provides reliable performance, manageability, and fault tolerance.

## Server Hardware Features

The following features are included in the NAS 1200s Model 1 server:

- Intel® Pentium® 4 2.4 GHz processor
- 512-MB 200 MHz PC2100 DDR SDRAM memory
- 64-bit PCI-X slot
- 64-bit PCI slot
- Four 80GB 7200 rpm hot-pluggable hard drives
- Two embedded 10/100/1000 WOL (Wake on LAN) network interface controllers (NICs)
- SCSI Controller for tape backup

The following features are included in the NAS 1200s Model 2 server:

- Intel Pentium 4 2.8 GHz processor
- 512-MB 200 MHz PC2100 DDR SDRAM memory
- 64-bit PCI-X slot
- 64-bit PCI slot
- Four 160GB 7200 rpm hot-pluggable hard drives
- Two embedded 10/100/1000 WOL (Wake on LAN) network interface controllers (NICs)
- SCSI Controller for tape backup

The following features are included in the NAS 1200s Model 3 server:

- Intel Pentium 4 2.8 GHz processor
- 512-MB 200 MHz PC2100 DDR SDRAM memory
- 64-bit PCI-X slot
- 64-bit PCI slot
- Four 250GB 7200 rpm hot-pluggable hard drives
- Two embedded 10/100/1000 WOL (Wake on LAN) network interface controllers (NICs)
- SCSI Controller for tape backup

## Software Features

Advanced features included and supported by the NAS 1200s include:

- Microsoft Services for Macintosh
- Microsoft Services for NetWare
- Microsoft NFS
- NAS Web Based User Interface (WebUI)
- Windows® Storage Server 2003
- Shadow Copies for shared folders
- Storage Manager
- Optional third party supported software (not included):
  - Backup software
  - Management software
  - Quota management
  - Virus protection

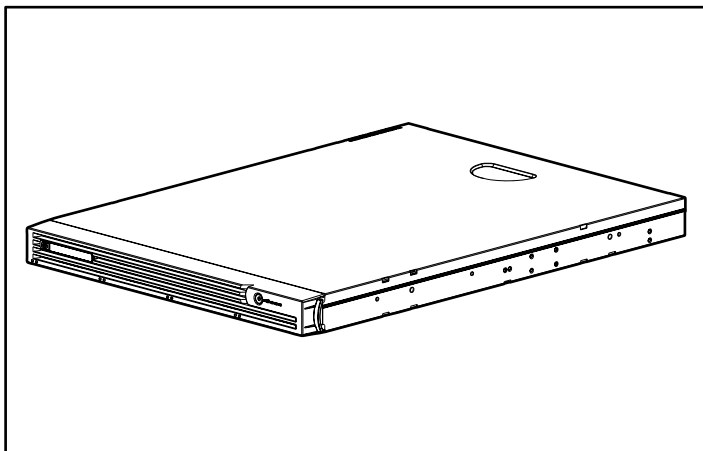
For specific software product recommendations, go to the HP website:

<http://h18000.www1.hp.com/products/storageworks/nas/support/edsoftware.html>

## Managing the NAS 1200s

The NAS 1200s is configured at the factory with default system settings and with the NAS operating system installed. Refer to the “Storage Management Overview” section later in this chapter for more information.

The NAS administrator uses Windows Disk Manager (DM) to manage the logical storage.



**Figure 1: NAS 1200s device**



## Product Redundancy

The NAS 1200s is specifically designed to perform file serving tasks for networks, using industry standard components to ensure reliability.

Other industry standard features, such as redundant array of independent drives (RAID) and remote manageability, further enhance the overall dependability of the NAS 1200s.

To ensure redundancy and reliability, the hard drives installed in the NAS 1200s are configured so that a single drive failure will not cause data loss or system failure. The NAS 1200s is configured with dual boot capability. When powered on, the NAS 1200s can boot using a primary OS or a secondary recovery OS. The primary OS resides on drive 0 and is mirrored on drive 1 while the secondary OS resides on drive 2 and is mirrored on drive 3. If the primary OS becomes corrupted and un-bootable, the secondary OS is available for data backup prior to using the Quick Restore DVD to restore the system to the factory default state.

The data volume is configured as a RAID 5 volume across all four drives. This ensures redundancy in the event of a drive failure and the data volume is accessible by both the primary OS and secondary OS.

# Dependencies and Requirements

Specific conditions must be met in order for the NAS 1200s to operate.

## Storage Requirements

To protect against data loss from hard drive failure, configure storage with fault tolerance in mind. HP recommends adhering to RAID5 configurations.

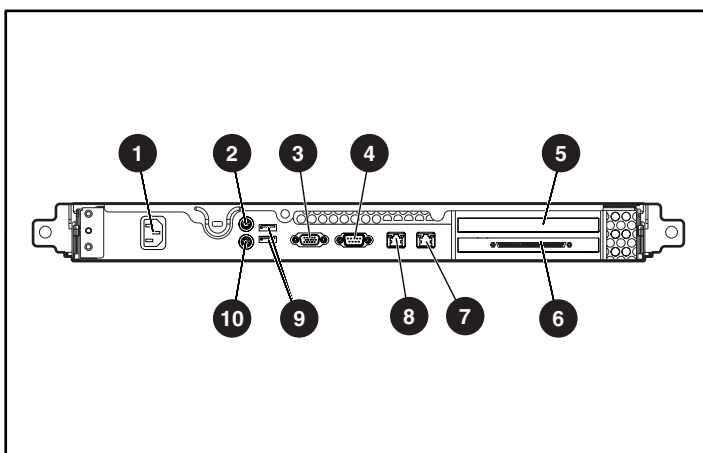
## IP Networking and Setup Requirements

The following are IP networking and setup requirements needed for a NAS 1200s device:

- Windows-based PC running Microsoft Internet Explorer 5.5 (or later) on the same network segment as the NAS 1200s; this will be used to set up and administer the NAS device.
- Additional Ethernet connection ports to client subnets (depending on network options ordered).

## Deploying the NAS 1200s on the Network

The default shipping configuration contains two 10/100/1000 integrated network interface controller (NIC) ports for client data access. These data ports also allow access to the Web user interface (WebUI) that accompanies the product. Most management and administrative procedures can be accomplished via the WebUI.



**Figure 2: Rear panel connectors**

**Table 2: Rear Panel Connectors**

Item	Description
①	Power connectors
②	Mouse connector (PS/2) (green)
③	Video connector (blue)
④	Serial connector (teal)
⑤	PCI expansion slot
⑥	LVD SCSI Controller connector
⑦	RJ-45 connector for NIC 1 (Eth0)
⑧	RJ-45 connector for NIC 1 (Eth1)
⑨	USB connectors (2) (black)
⑩	Keyboard connector (PS/2) (purple)

# Setup and Configuration Overview

Setting up systems is a well-defined process. This section is intended as an overview of the process, not a detailed list of step-by-step instructions. Step-by-step procedures are documented in the administration guide. Some of the steps are driven by wizards within the WebUI. In either type of setup, it is important to read all of the supplied documentation before starting. Relevant documents include:

- *HP StorageWorks NAS 1200s Administration Guide*
- *HP StorageWorks NAS 1200s Rack Installation Instructions*
- *HP StorageWorks NAS 1200s Release Notes* (if required, this document will be available via [www.hp.com](http://www.hp.com))

## Configuring the NAS 1200s

The following describes how to configure the NAS 1200s.

1. Configure the NAS device using Chapter 2 of this guide.
2. **This is a recommended step.** Place the NAS device into an Active Directory or Windows NT® 4.0 domain for ease of manageability.
3. Configure the NAS 1200s device using Chapter 3 of this guide.
4. **This is an optional step.** Using Disk Manager (DM), assign drive letters or mount points, and format the data drives. See the DM online help for full details on this procedure.
5. **This is an optional step.** Enable protocols such as NFS sharing, NCP, and/or AppleTalk. See the administration guide for this procedure in detail.
6. **This is an optional step.** Create shares corresponding to the protocols mentioned in the previous steps. Grant access rights to the shares.
7. Read the remaining sections of the administration guide.

---

**Note:** By default the data drive (F:) is configured and ready for use.

---

# Storage Management Overview

This section provides an overview of the components that make up the NAS storage structure. A complete discussion of the components and their relationships is available in the administration guide.



---

**Caution:** This section on storage management and Windows DM is required reading material for the NAS administrator. This section develops the concepts and requirements that serve as the basis for successfully using an HP StorageWorks NAS device. Failure to read this section and the appropriate sections on storage management in the administration guide may lead to data loss or file corruption.

---

## Storage Management Elements

Storage is divided into three major divisions:

- Logical storage elements
- File system elements
- File sharing elements

Each of these elements is composed of the previous level's elements.

## Logical Storage Elements

The NAS 1200s uses the Microsoft Disk Manager (DM) for managing the various types of disk presented to the file system. Disk Manager has two types of disk presentations: basic disk and dynamic disk. Each of these types of disk has special features that enable different types of management. The NAS 1200s uses a dynamic RAID5 volume to ensure maximum data protection.

## File System Elements

File system elements are composed of the folders and subfolders that are created under each logical storage element (partitions, logical disks, and volumes). Folders are used to further subdivide the available file system providing another level of granularity for management of the information space. Each of these folders can contain separate permissions and share names that can be used for network access. Folders can be created for individual users, groups, projects, etc. Refer to the administration guide for more details on file system elements.

## File-Sharing Elements

The NAS 1200s supports several file-sharing protocols, including DFS, NFS, FTP, HTTP, and Microsoft SMB. On each folder or logical storage element, different file-sharing protocols can be enabled using specific network names for access across a network to a variety of clients. Permissions can then be granted to those shares based on users or groups of users in each of the file sharing protocols. Refer to the administration guide for more details on file system elements.

# Configuration Setup

## 2

This chapter provides information about preinitialization, collecting information, and configuring the HP StorageWorks NAS 1200s using the online method. Details include three methods of system configuration and an overview of storage configuration.

## Preinitialization

Before beginning the installation process, verify that the hardware installation is complete. Verify that the NAS 1200s is completely installed in the rack and that all cables and cords are connected.

---

**Note:** If you need assistance with rack installation or hardware connections, refer to the quick reference and rack installation guide included in the shipping carton.

---

# Collect Information for Configuration

Choose a host name and collect general information before initializing the NAS 1200s.

## Configuration Information

Collect the general information required to initialize the NAS device for both dynamic host configuration protocols (DHCP) and non-DHCP configurations. You will be asked for this information during configuration, as shown in [Table 3](#). Become familiar with this information before attempting to configure the NAS device.

**Table 3: Configuration Information**

<b>Part A: To Be completed for DHCP and non-DHCP configurations</b>			
Server Host Name:			
<b>Part B: To be completed for non-DHCP configurations only</b>			
DNS Servers	IP Address		
1			
2			
3			
NAS NIC Port*	IP Address	Subnet Mask	Gateway Address
NIC 1			
NIC 2			
* The default NAS 1200s has two Ethernet ports available for network connectivity. Disable ports that will not be used. Each Ethernet port must be configured with a separate subnet.			
<b>Part C: SNMP Information (optional)</b>			
Trap Destination (IP Address) Manager Client:			
Management Traps Community String:			
System Management Community String:			



# WebUI Configuration

The WebUI is designed to be a graphical, easy-to-use application that gathers the necessary information for configuration. The WebUI may be accessed through three methods:

- RapidLaunch method
- Remote Browser method (using hostname)
- Direct Attach method

---

**Note:** You can configure this system through the WebUI or manually through Remote Desktop or Windows Storage Server 2003 Desktop.

---

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**Note:** The NAS 1200s is designed to be deployed without a monitor, keyboard, and mouse. These ports are available and supported by the NAS device, if used.

---

## RapidLaunch Method

The NAS 1200s includes a RapidLaunch CD that can run on any Windows-based PC using Internet Explorer 5.5 (or later).

## Requirements

The following items are required to run the WebUI configuration application:

- Windows-based PC loaded with Internet Explorer 5.5 (or later) on the same network segment as the NAS 1200s
- RapidLaunch CD

## Procedure

To initialize the NAS 1200s:



**Caution:** Do not power up the NAS device until steps 1 through 5 are completed.

---

1. Connect the Ethernet cables to the respective network ports of the NAS 1200s and the corresponding network segments. See [Figure 2](#) and [Table 2](#) on page 19 for the locations of the network ports on the NAS 1200s.

---

**Note:** Connect a loopback cable to any of the NAS 1200s Ethernet ports that are not configured for use.

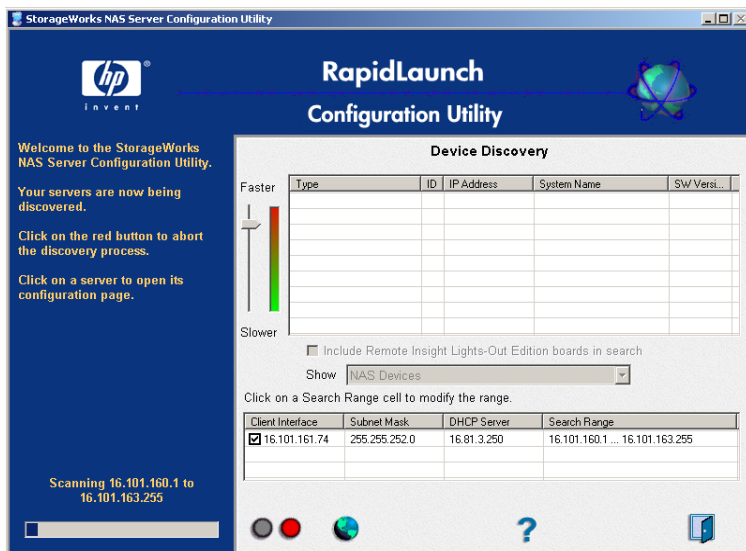
---

2. Verify that the Windows-based PC client is connected to the same subnet as the NAS 1200s.
3. Power on the PC and wait until the operating system has completely loaded.
4. Insert the RapidLaunch CD into the CD-ROM drive of the PC.
5. The RapidLaunch CD should run automatically. If the program does not start up automatically, the program may be run manually. Click **Start**, select **Run** on the Windows taskbar, and then type the following:

```
{CD ROM drive}:\setup.exe
```

Wait for the interface to start.

6. Go to the NAS device and power it on. It will be several minutes before the NAS device is accessible on the network.
7. Return to the PC. Select **StorageWorks NAS** from the **Show** drop-down list to have RapidLaunch list all NAS devices on the network, as shown in [Figure 3](#).



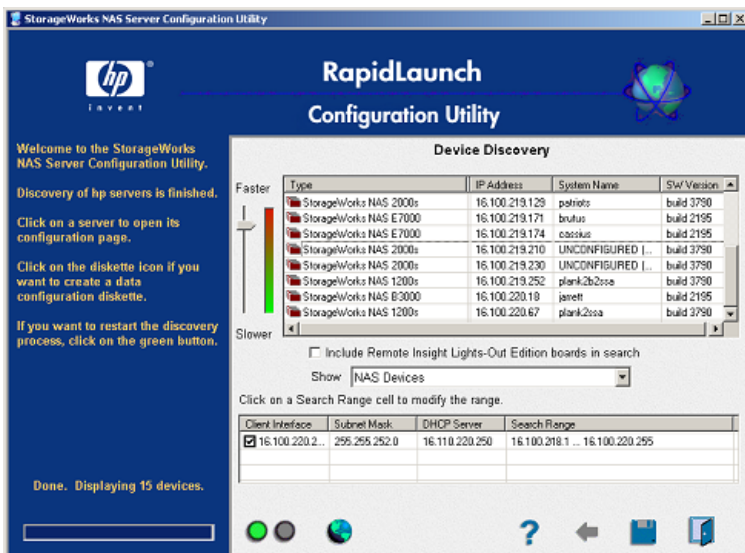
**Figure 3: RapidLaunch search screen**

8. All the NAS devices found on the network are displayed as shown in [Figure 4](#). It may take several minutes for the NAS device to be found on the network.

---

**Note:** The RapidLaunch utility will refresh periodically, looking for new devices on the network. Refresh the device list manually by selecting the Refresh button.

---



**Figure 4: RapidLaunch device discovery screen**

9. Select the unconfigured HP StorageWorks NAS 1200s device from the device list. If more than one displays, check the serial number in the *System Name* column by clicking the appropriate cell.
10. Login to the WebUI. This launches the WebUI configuration application (Rapid Startup) on the target HP StorageWorks NAS device, as shown in [Figure 6](#).

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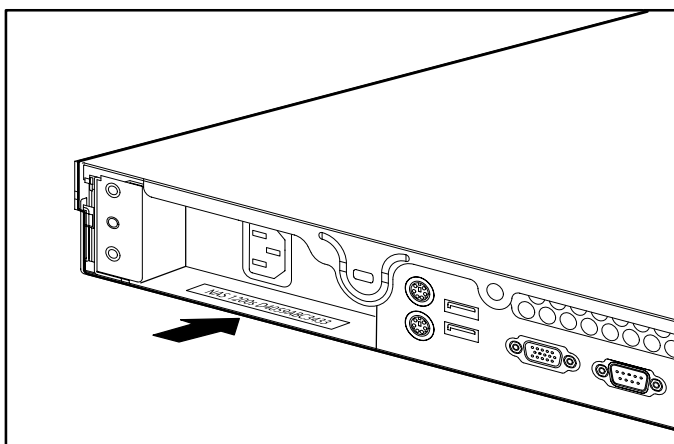
**Note:** The default login for the WebUI is `administrator` and the password is `hpinvent`. The WebUI uses the same login as the local administrator's account or an account with administrative privileges.

---

11. Go to the “[Rapid Startup Wizard Configuration](#)” on page 32 to complete the setup procedures.

## Remote Browser Method (using Hostname)

The NAS 1200s ships with DHCP enabled on the network port. If the system is placed on a DHCP enabled network and the serial number of the device is known, it can be accessed through a client running Internet Explorer 5.5 (or later) on that network, using the 3202 port of the device. The serial number is located below the power source on the back of the NAS 1200s, as illustrated in [Figure 5](#).



**Figure 5: Serial number location**

## Requirements

The following items are required to run the WebUI configuration application:

- Windows-based PC loaded with Internet Explorer 5.5 (or later) on the same segment as the NAS 1200s
- DHCP-enabled network
- Serial number of the NAS 1200s

## Procedure

To initialize the NAS 1200s:

1. Connect the Ethernet cables to the respective network ports of the NAS 1200s and the corresponding network segments. See [Figure 2](#) and [Table 2](#) on page 19 for the locations of the network ports on the NAS 1200s.

2. Go to the NAS device and power it on. It will be several minutes before the NAS device is accessible on the network.

---

**Note:** The NAS device will respond when the NAS operating system has started.

---

3. Open Internet Explorer on the PC. Enter `https://`, the serial number of the NAS 1200s followed by a hyphen (-), and then `:3202`. Press **Enter**.

Example: `https://D4059ABC3433-:3202`

---

**Note:** Substitute the server name for the serial number if a server name was previously set.

---

4. Login to the WebUI. This launches the WebUI configuration application (Rapid Startup) on the target HP StorageWorks NAS device, as shown in [Figure 6](#).

---

**Note:** The default login for the WebUI is `administrator` and the password is `hpinvent`. The WebUI uses the same login as the local administrator's account or an account with administrative privileges.

---

5. Go to the next section, “[Rapid Startup Wizard Configuration](#),” to complete the setup procedures.

## Direct Attach Method

You can access the WebUI using a monitor, mouse, and keyboard directly attached to the NAS 1200s.

### Procedure

To initialize the NAS 1200s:

1. Connect the Ethernet cables to the respective network ports of the NAS 1200s and the corresponding network segments.
2. Connect the monitor, mouse, and keyboard directly to the rear panel connectors of the NAS 1200s. See [Figure 2](#) and [Table 2](#) on page 19 for the locations of the connectors on the NAS 1200s.
3. Open Internet Explorer to launch the WebUI configuration application (Rapid Startup) on the target StorageWorks NAS device, as shown in [Figure 6](#). If the WebUI does not launch connect to the *LocalHost* and login to the WebUI.

---

**Note:** The default login for the WebUI is `administrator` and the password is `hpinvent`. The WebUI uses the same login as the local administrator's account or an account with administrative privileges.

---

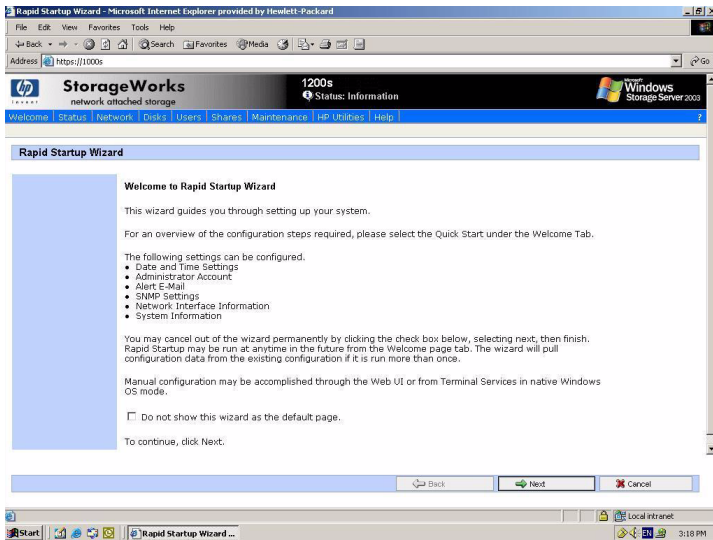
4. Go to the “[Rapid Startup Wizard Configuration](#)” on page 32 to complete the setup procedures.

# Rapid Startup Wizard Configuration

This utility will guide you through the configuration process.

## Requirements

Ensure that an Internet Explorer window has been opened and the WebUI is at the Rapid Startup Wizard as shown in [Figure 6](#).



**Figure 6:** Rapid Startup wizard screen

---

**Note:** The Rapid Startup Wizard will be the default page unless you complete the wizard or select the checkbox next to the text that reads, "Do not show this wizard as the default page."

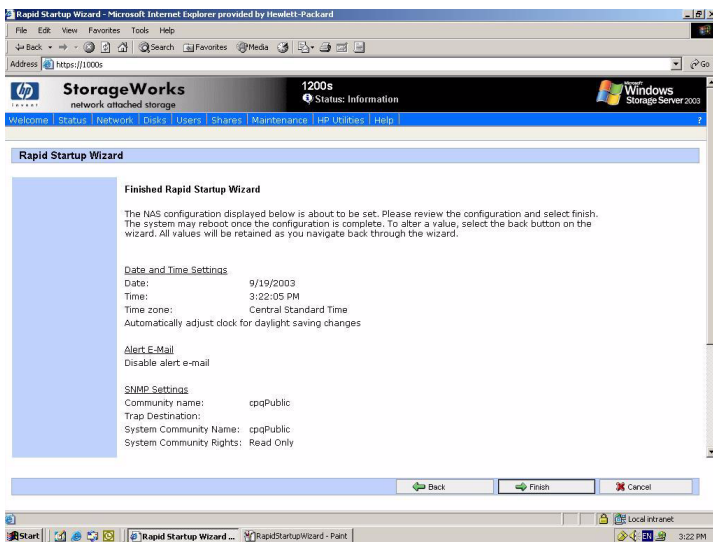
---



## Procedure

Using the information from [Table 3](#), fill in the screens that follow.

1. Select **Next** to start the Rapid Startup Wizard (There may be a slight pause because the wizard is gathering information about the system and populating the fields.)
2. Configure the Date and Time Settings. Select **Next** to continue.
3. Configure the Administrator Account settings. Select **Next** to continue.
4. Configure the Alert Email settings. Select **Next** to continue.
5. Configure the SNMP Settings. Select **Next** to continue.
6. Configure the Network Interface Information for both NICs. Select **Next** to continue.
7. Configure the System Information. Select **Next** to continue.
8. Verify that your information is correct when the configuration review screen is displayed as shown in [Figure 7](#).



**Figure 7: Rapid Startup configuration review screen**

9. Click **Finish** to exit Rapid Startup. If a reboot is required, Rapid Startup displays a message that a reboot is occurring and the configuration information will be set.

The browser will return to the status page. The refresh may take several minutes if the device was restarted.

---

**Note:** Once the Rapid Startup Wizard has been completed the Welcome page will become the default page.

---

## Configure Storage

Physical disks can be arranged as RAID arrays for fault tolerance and enhanced performance, then segmented into logical disks of appropriate sizes for particular storage needs. These logical disks then become the volumes that appear as drives on the NAS server.

---

**Note:** The Data Volume is configured by default as a RAID-5 volume across all four disks and is formatted as NTFS with a 16K allocation unit size.

---

## Creating a Volume

To create a Volume on unused disk space:

1. Click the **Disks** tab and select **Volumes**.
2. Select the **Manage...** in the *Task* section.
3. Log in to the Remote Desktop session as an administrator.
4. Right-click in the unallocated space.
5. Select **New Volume** from the menu.
6. Use the *New Volume Wizard* to create a new volume, format a filesystem, and mount the volume on a drive letter or subdirectory of another mounted volume.

---

**Note:** For detailed information on creating volumes such as the types of volumes available, and the advantages of basic and dynamic disks, see the help feature in the Disks Management interface.

---

## Creating File Shares

Once the storage space is set up, file shares are created by selecting an entire volume or a particular folder on a volume and designating that space as a network volume. That space is then available to groups of client computers on the network. The client computers access this space through a variety of file sharing protocols using the disk space to store their files and folders.

1. Click the **Shares** tab and select **Shares**.
2. Click **Folders** to create a new folder on the previously created volumes, or use an existing folder.
  - a. Select a volume and click **Manage Folders > New...**
  - b. Type the *folder name* and click **OK**.
3. Click **Shares** to create a file share by designating a network share name and folder location.
  - a. Click **New** and type a *name* and a *path*.

---

**Note:** Check Create Folder if the directory does not exist.

---

- b. Set client types to designate the types of client computers that should be allowed access to the share.
  - c. Click the appropriate Client Sharing from the General list to set user and group permissions on the share.

# Basic Setup Complete

This completes the basic configuration of the HP StorageWorks NAS system, however, some computing environments may require additional settings and configuration as noted below.

## Completing the System Configuration

Most of these tasks can be completed using the HP StorageWorks NAS WebUI. All procedures for the configuration tasks may be found in the *HP StorageWorks NAS 1200s Administration Guide*.

- Configure shadow copies for creating point-in-time snapshots of data volumes.
- Configure data replication software via Microsoft File Replication Services.
- Place the NAS system in a domain (highly recommended).
- Enable and establish space usage quotas.
- Configure DFS (Distributed File System) or publish the NAS system's shares into an already existing DFS structure.
- Enable additional protocols and create the associated file shares.
- Adjust logging for system, application, and security events.
- Install additional 3rd party software, such as backup, anti-virus, or monitoring agents.
- Configure UNIX user and group mappings.
- Create and verify a full NAS system backup before putting the system into production.

# Regulatory Compliance Notices



## Federal Communications Commission Notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (personal computers, for example). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

The rating label on the device shows which class (A or B) the equipment falls into. Class B devices have an FCC logo or FCC ID on the label. Class A devices do not have an FCC logo or FCC ID on the label. Once the class of the device is determined, refer to the following corresponding statement.

## Class A Equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

## Class B Equipment

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

## Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Hewlett-Packard Company may void the user's authority to operate the equipment.

## Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

## Declaration of Conformity for products marked with the FCC logo - United States only

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions regarding your product, contact:

Hewlett-Packard Company

P. O. Box 692000, Mail Stop 530113

Houston, Texas 77269-2000

Or, call

1-800- 652-6672

For questions regarding this FCC declaration, contact:

Hewlett-Packard Company

P. O. Box 692000, Mail Stop 510101

Houston, Texas 77269-2000

Or, call

(281) 514-3333

To identify this product, refer to the Part, Series, or Model number found on the product.

# Canadian Notice (Avis Canadien)

## Class A Equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

## Class B Equipment

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

## European Union Notice



Products bearing the CE marking comply with the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community and if this product has telecommunication functionality, the R&TTE Directive (1999/5/EC).

Compliance with these directives implies conformity to the following European Norms (in parentheses are the equivalent international standards and regulations):

- EN 55022 (CISPR 22) - Electromagnetic Interference
- EN55024 (IEC61000-4-2, 3, 4, 5, 6, 8, 11) - Electromagnetic Immunity
- EN61000-3-2 (IEC61000-3-2) - Power Line Harmonics
- EN61000-3-3 (IEC61000-3-3) - Power Line Flicker
- EN 60950 (IEC 60950) - Product Safety



# BSMI Notice

## 警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

## Japanese Notice

ご使用になっている装置にVCCIマークが付いていましたら、次の説明文をお読み下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。  
取扱説明書に従って正しい取り扱いをして下さい。

VCCIマークが付いていない場合には、次の点にご注意下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

# Battery Replacement Notice

The battery-backed write cache uses a nickel metal hydride (NiMH) battery pack.



**WARNING:** There is a risk of explosion, fire, or personal injury if the battery pack is not properly handled. To reduce this risk:

- Do not attempt to recharge the batteries if they are disconnected from the controller.
- Do not expose the battery pack to water, or to temperatures higher than 60°C (140°F).
- Do not abuse, disassemble, crush, or puncture the battery pack.
- Do not short the external contacts.
- Replace the battery pack only with the designated HP spare.

Battery disposal should comply with local regulations.



Batteries, battery packs, and accumulators should not be disposed of together with the general household waste. To forward them to recycling or proper disposal, use the public collection system or return them by established parts return methods to HP, an authorized HP Partner, or one of their agents.

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For more information about battery replacement or proper disposal, contact an authorized reseller or an authorized service provider.

# Electrostatic Discharge

## B

To prevent damage to the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

# Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm  $\pm$  10 percent resistance in the ground cords. To provide proper grounding, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an authorized reseller install the part.

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**Note:** For more information on static electricity, or for assistance with product installation, contact your authorized reseller.

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